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ABSTRACT

A study investigated the effect of phonemic awareness instruction on the reading ability of first and second grade students. Participants were 100 second graders who had been in 5 first grades at Westside Elementary in Searcy, Arkansas. Using a posttest only control group design and a t test for independent samples, it was found that second grade students (n=42) who received a color-differentiated, rhythmic program of phonemic awareness and orthographic pattern instruction followed by a literature-based reading program in first grade scored significantly higher on the second grade SAT-9 reading test than students (n=58) who were instructed with a traditional basal reader program in first and second grades. Findings suggest that the phonemic awareness instruction was effective in improving the reading scores of the participating students. (Contains a table of data and 16 references.) (Author/NKA)

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The Effects of Phonemic Awareness Instruction in First Grade On the Reading Scores of Rural Primary Students

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Abstract

The purpose of this study was to investigate the effect of phonemic awareness instruction on the reading ability of first and second grade students. Using a post-test only control group design and a t test for independent samples, it was found that second grade students (n=42) who received a color-differentiated, rhythmic program of phonemic awareness and orthographic pattern instruction followed by a literature-based reading program in first grade scored significantly higher on the second grade SAT-9 reading test than students (n=58) who were instructed with a traditional basal reader program in first and second grades, $t(98) = 2.71$, $p<.01$. It was concluded that the phonemic awareness instruction was effective in improving the reading scores of the participating students.

Introduction

Throughout American history, one of the biggest arguments in early childhood education has been over the place of phonics in reading instruction. From the 1790s, when phonics was taught with Noah Webster's Blue Back Speller (Webster, 1798), until now some educators have questioned the worth of phonics (Morrow & Tracy, 1997). The current debate of reading teachers is among phonics-based instruction, whole language instruction or using a basal reader series.

In order to read, one must be able to decode words and comprehend the words that are read. Comprehension of the text is impossible if the student cannot recognize the words that are written. Therefore, teaching children to decode is crucial. The ability to decode depends on the awareness that words are made up of meaningless segments and distinct sounds called phonemes. This knowledge is called phonemic awareness (Adams, 1990; Grossen, 1997.)

Statement of Problem

The purpose of this study is to determine the effect of a color-differentiated, rhythmic program of phonemic awareness and orthographic pattern instruction followed by a literature-based reading program in first grade on the reading achievement of students through the second grade. Phonemic awareness includes the abilities to blend phonemes into syllables, to separate syllables into their component phonemes, to count the number of syllables in a word, and the ability to eliminate a particular phoneme from a word (Adams, 1990, Grossen, 1997).

Review of Related Literature

According to Connie Juel (1988), if a child is a poor reader in first grade there is a great probability that the child will continue to be a poor reader by the end of fourth grade. In Juel's study, the common factor that kept poor readers from succeeding was a lack of decoding skills. By the end of fourth grade, the poor readers had not achieved the level of decoding skills that the good readers had by the end of second grade. Because of their lack of decoding skills the poor readers were not able to read as much text as good readers were. In fact, by the fourth grade, the good readers had read an average of 18,681 words and poor readers had read 9,975 words. The reading problems of the poor readers became a vicious cycle because their deficit in exposure to print caused the poor readers to fall father and farther behind. This study shows the importance of early instruction in decoding.

Phonemic awareness has been shown to be a better predictor of success in reading that IQ scores (Fletcher, Shawitz, Shakweiler, Katz, Liberman, Stuebing, Francis, Fowler, & Shaywitz, 1994). Through modern neuroimaging technology, medical researchers have identified a unique trait among people with reading problems, a difficulty in processing phonemes in language (Grossen, 1997).

In her 1988 study, Juel found that if some phonemic awareness does not exist when a child enters first grade or if it is not quickly taught, then phonics instruction is not effective.

Reading is not a natural or a developmental skill: It must be learned. In other words, reading difficulties in first grade are a result of a lack of skills rather than a child not being developmentally ready to read (Grossen, 1997; Juel, 1988).

In a longitudinal study of reading disabled children (Fletcher, et al., 1994), researchers found that 74 percent of children who were reading disabled in third grade still fell in that category in ninth grade. This research goes against the belief that children will begin to read when they are ready. Therefore the idea of developmental appropriateness is not a valid argument for delaying phonemic awareness instruction.

Since much empirical evidence has shown that teaching phonics is important, the questions is how it should be taught. Many whole language teachers believe that phonics should be taught in the meaningful context of real language with implicit instruction and not with worksheets and drill (Griffith & Olsen, 1992; Morrow & Tracey, 1997; Richgels, Poremba, & McGee, 1996). Whole language instruction stresses whole to part processes where the children learn to read in order to glean meaning from the text. The student learns to read through the combination of reading, writing, and speaking instead of through a skills based approach. Students learn to read the words they have dictated and gradually understand the letter-sound connection.

Other educators argue that when taught only in natural language settings some vital parts of phonics instruction are left out. Therefore, a more direct or explicit approach is called for with a systematic teaching of sound-symbol relationships (Adams, 1990; Chall, 1967; Morrow, 1997).

Some educators propose a middle ground where direct phonics instruction is given in a whole language environment. In this combined approach, the teacher plans for phonics instruction by providing meaningful settings for learning specific skills (Morrow, 1997). This approach is sometimes called "embedded phonics". Grossen's (1997)

synthesis of research indicated that embedded phonics is less effective than direct explicit instruction in phonics.

An approach which is still widely used is teaching phonics in the context of a basal reader series. Most of these series present phonics instruction along with reading stories. However, Grossen (1997) reported that students are often required to read stories they have not been taught the decoding skills to read.

Gedachian (1997), compared a whole language approach to a multi-sensory explicit phonics approach. The results showed a large difference in reading ability in favor of the phonics approach. In Cameron's (1998) study, whole language, combination phonics and whole language and phonics-only approaches were compared to determine the influence that each had on standardized test scores. The test scores of students who had had the phonics-only approach were higher in reading, language and math.

Roberts (1996), compared the decoding ability of students instructed in a basal reading program to students instructed in an explicit phonics program. The study showed that students instructed in the explicit phonics program scored significantly higher on word recognition than students who were instructed in the basal reading program. The basal reader group lacked the skills necessary to decode words because they had low phonemic awareness. In another study comparing the basal reader approach to other approaches, Watson (1994) found that students instructed in basal readers showed a decrease in positive attitudes toward reading.

To summarize, reading instruction programs that include explicit phonemic awareness instruction are the most successful. It is recommended by many researchers that phonemic awareness be taught through carefully planned instruction in the context of

real reading beginning in kindergarten and continuing in first grade (Griffith & Olsen, 1992, Grosssen, 1997). Grossen recommends that children be taught sound-symbol relationships and sound blending skills, and, as soon as possible, given the opportunity to read books that contain only the sound and blending patterns they have learned. She recommends comprehension be taught as the teacher reads aloud to children at their listening level (1997).

Yopp (1992) suggests that teachers keep phonemic awareness instruction fun and non-evaluative, encourage children to be actively involved, and give them opportunities to experiment with language.

Statement of Hypothesis

Research has shown the importance of teaching phonemic awareness and phonics in kindergarten and first grade. However, there are many phonics programs available that need to be examined. One new phonics program currently in press is Color My World with Phonics written by Jenny O'Brien and Fran Key. This program has been in use since 1994 at Westside Elementary School in Searcy, Arkansas. It emphasizes phonemic segmentation, blending, and orthographic patterns, using a music and games in a multi-sensory approach. Students apply what they learn reading trade books. Therefore, the need has arisen to study the successfulness of this program and to compare it to the basal reading series that was used before this program was started. Therefore, it is hypothesized that students who were exposed to the explicit phonemic awareness instruction in the Color My World with Phonics curriculum in first grade scored higher on the reading section of the second grade SAT-9 achievement test than students who were instructed with a traditional basal reading program.

Method

Participants

The participants in this study were 100 second-graders who had been in five first grade classes at Westside Elementary in Searcy, Arkansas, during the previous school year. Three of the classes had been taught with a basal reading program that contained little phonics instruction. The other two classes were instructed with an explicit phonics program that used music and games to teach phonemic awareness. In addition, this group was given at least 20 minutes each day to read trade books to apply what they had learned. They were also read to on their appropriate listening comprehension level in order to increase their comprehension skills.

Students who were new to the school and did not participate in either first grade reading program were not included in the study. Students who had moved to another school after first grade were also not included in the study. This left the total number of participants in the study who actually took the second grade SAT-9 reading test at 100 children, 58 who had been taught using a basal reader program, and 42 who had been taught using a phonemic awareness and phonics program, supplemented with literature. Of the 100 students, 51 percent were male and 48 percent were female. Ninety-five of the children in the group were Anglo European American, while two were African American, and three were of other ethnic backgrounds.

Instrument

The effectiveness of the phonemic awareness program as compared to the basal reading program was determined by comparing the participants' scores on the second

grade reading section of the Stanford Achievement Test, administered in April of 1998. The SAT-9 Achievement Test was designed to measure students' general knowledge in broad areas of curriculum. The reading section tests word study skills, reading vocabulary, and reading comprehension.

A committee of reading experts, editors, measurements specialists, and teachers reviewed the items on the test for content, style, and appropriateness for measuring the instructional objectives. The validity of the test was well rated by reviewers.

The multiple choice batteries on the SAT-9 have acceptable reliability. The KR20 coefficients have been in the acceptable range of the mid 80s to the 90s for the most tests and sub-tests of the full multiple choice batter." (Beck, 1998)

Procedure

This study compared the effectiveness of the phonics program taught in Jenny O'Brien and Fran Key's classroom with the basal reader program taught in the other three classrooms. In Arkansas, standardized testing does not begin until the second grade. Therefore, it order to compare the successfulness of the two reading programs and their effect on standardized test scores, this study compared the second grade SAT-9 reading scores of both groups. To protect the privacy of the students, one of the teachers copied the students' scores and removed the names of the students from the test information. The scores of students who were new to the school in second grade were also eliminated.

Results

The data were analyzed by computing the mean and standard deviation for each group. Afterward, a t-test for independent samples ($a = .05$) was done to determine if the means of the two groups was significantly different. In the obtained results, there was a range of 85 points between the test scores with a low of 32 and high of 117. The mean of the 58 students in the Basal Reader Group was 86.81 and the mean of the 42 students in the Phonemic Awareness Group was 95.93. The difference between the means was 9.12 which was almost 11 percent of the observed range. The difference was in favor of the Phonemic Awareness Group. The t for the difference between the two means, with 98 degrees of freedom, was 2.71 which was significant at the .01 level (see Table 2 below). The range and the standard deviation were smaller in the phonemic awareness group which demonstrates a higher degree of consistency.

Table 1

Means, Standard Deviation and t Test for the control and experimental group

	Group		
Score	Basal Reader instruction	Phonemic Awareness instruction	t
SAT-9			
M	86.81	95.93	2.71
SD	18.14	14.27	

Additional comparisons were made by using three sub-groups within the larger Basal Reader and Phonemic Awareness groups.

The first of the sub-groups considered were the "above average" students whose scores fell one standard deviation above the means within their groups. In the Basal Reader group, there were nine students who scored 105 or above which placed them one

standard deviation above the mean, with the standard deviation being 18.14 and the mean being 86.81. In the Phonemic Awareness group, there were five students with reading test scores of 111 or above and thus more than one standard deviation above the mean, with the standard deviation of 14.27 and the mean of 95.93. The "above average" students from the Basal Reader group had a mean score of 108.33, while the "above average" students in the Phonemic Awareness group had a mean score of 113.8. The difference between the two means was 5.47 with a t-score of 2.69 at 12 degrees of freedom, that difference was significant at the .02 level.

The second of the sub-groups considered were the groups of "average students" whose reading test scores fell within one standard deviation of the means for their groups. In the Basal Reader group, there were 39 students whose reading test scores were between 69 and 104. In the Phonemic Awareness group, there were 29 students whose reading test scores were between 82 and 110. The "average" students in the Basal Reader group had a mean score of 90.05, while the "average" students in the Phonemic Awareness group had a mean score of 99.34. The difference between the means was 9.29 and a t of 2.27 at 66 degrees of freedom. This difference was significant at the .05 level.

The last of the sub-groups considered was the "below average" group of students whose test scores were more than one standard deviation below the mean for their group. There were 10 students in the Basal Reader group who fell in this category. Their test scores ranged from 68 to 32. In the Phonemic Awareness group, there were eight students with scores ranging from 81 to 55. In the Basal Reader group, the mean score was 54.8, while the Phonemic Awareness group had a mean score of 72.37. The difference between the means was 17.57 with a t-score of 1.97 at 16 degrees of freedom. This difference

approached significance with the probability being less than .1 and greater than .05. The standard deviations were too large with the below average groups for the observable difference to achieve statistical significance. However, it was in the same direction as the other groups in that the Phonemic Awareness group clearly scored higher.

Discussion

The results of this study support the original hypothesis: Students who were exposed to the explicit phonemic awareness instruction in the Color My World with Phonics curriculum in first grade scored higher on the reading portion of the second grade SAT-9 achievement test than the students who were instructed with a traditional basal reader program.

Therefore, this study shows that we can be confident that the overall difference between the means of the Basal Reader group and the Phonemic Awareness group would be found in larger samples ($p<.01$). We can have a good level of confidence about the difference between the "average" students in the two groups ($p<.05$). However, additional research will be needed before we can be confident about the observed difference between the "below average" students in the two groups.

From breaking the groups down into these sub-groups and observing the size of the differences between the means it is apparent that the Phonemic Awareness approach seems to be associated with reading test scores that are: Good for the "above average" students; very good for the "average" students; and outstanding for the "below average" students.

The academic equality of the five classes is unknown. It was not possible to give a pretest to the students because of the nature of the sturdy. Although the groups for the five classes were not selected by ability level, it is possible that the treatment groups had a higher ratio of "above average" students or a lower ratio of "below average" students. Further research is needed where groups are chosen randomly and a pretest is

administered to assure that an ability difference is not the reason for the difference between the means of the group's test scores.

The two teachers using the phonemic awareness instruction wrote the program in 1994. One of the teachers, Fran Key, was a master teacher with many years of experience. The other teacher, Jenny O'Brien, had taught for five years. The three teachers who used the basal reader instruction were neither novices nor master teachers. It is possible that the difference between the teachers in years of experience had an influence on the results of the study. It is also possible that the two teachers who wrote the phonics program and had a great interest in its success taught with more enthusiasm. Further research is needed where teachers selected to teach the research groups are well matched in years of experience and enthusiasm for their reading program.

The Color My World with Phonics program appears to be a successful tool for teaching beginning reading skills when used in a literature rich environment that immerses the child in reading as soon as they have the skills to begin. While further research is needed, especially on the success of this program with "below average" students, teachers need to be alerted to the importance of teaching phonemic awareness. Learning to read is the most essential part of a solid early childhood education. Educators must continue to search for successful programs and implement the ones that are most effective to insure the success of all students.

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